

JOINT INVESTIGATION REPORT

INCIDENT NO: 1592252 JIV report S/N:

Nº 0000188

(Note: As practicable as possible the JIV report is to be signed in the field by all the participating parties)

A. GENERAL INFORMATION:

1. Spill incident Number: 1592252 2. Type of incident* OIL SPILL
3. Name of Location 8" BELEMA - SEGO DELIVERY LINE
4. Name of nearest community OFFOINAMA 5. State: RIVERS 6. LGA AKUKUTORU
7. Type of Production facility/Installation OIL PIPELINE
8. Asset owner/District THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LTD

(SPDC)/
PIPELINE

B. INCIDENT INFORMATION:

9. Details of incident
a. Date of incident: 9TH MARCH, 2016
b. Start date/time of investigation: 16TH MARCH, 2016 / 12 00 HRS
c. Investigation End date: 26TH AUGUST 2016 Actual investigation duration, days: SIX (6) DAYS
d. Description of spill point environment

- | | | |
|---|--|---|
| <input type="checkbox"/> Firm soil | <input checked="" type="checkbox"/> Loose soil | <input checked="" type="checkbox"/> Recently excavated area |
| <input type="checkbox"/> Under water | <input checked="" type="checkbox"/> Swampy | <input type="checkbox"/> Exposed pipe surface |
| <input type="checkbox"/> Well Platform (on Water) | <input type="checkbox"/> Drill Rig | |

Additional observations around the spill point: THE JOINT INVESTIGATION TEAM OBSERVED DRILLED HOLE: AT 12 O'CLOCK POSITION.

e. Description of leak point (tick as applicable):

- | | | |
|---|---|--|
| <input checked="" type="checkbox"/> Drilled hole | <input type="checkbox"/> Hack saw cut | <input type="checkbox"/> Tear (_____). |
| <input type="checkbox"/> Complete Rupture | <input type="checkbox"/> Inward dent, | <input type="checkbox"/> Well head tampering |
| <input type="checkbox"/> Failed Weld-on illegal hot tap valve | <input type="checkbox"/> Failed Clamp, | <input type="checkbox"/> Missing Pipeline/Flowline |
| <input type="checkbox"/> Crude oil theft (illegal bunkering) point, | <input type="checkbox"/> Saver-pit over flow | <input type="checkbox"/> Third party tampering with Clamp |
| <input type="checkbox"/> Third party tampering with valve setting | <input type="checkbox"/> Bulging Outward | <input type="checkbox"/> Third party tampering with flange, |
| <input type="checkbox"/> Flare System/Bund wall failure | <input type="checkbox"/> Cold vent | <input type="checkbox"/> Surge vessel overflow, |
| <input type="checkbox"/> Valve Failure | <input type="checkbox"/> Relief valve failure | <input type="checkbox"/> Accidental 3 rd party equipment impact |
| <input type="checkbox"/> Others(specify) _____ | | |

f. Incident caused by:

- Third party interference (Sabotage crude theft ; Line theft ; Accidental 3rd party damage
 Operational Others (including Mystery spills) _____

*This can be: a) Oil Spill b) Drilling fluid/Chemical c) Situation d) construction e) Encroachment f) Fire.

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g. Spill point coordinates

h. Measuring unit

WGS 84

Northing: LATITUDE 04.47671	Easting: LONGITUDE 006.65762
 	
 	

C. RISK ASSESSMENT

10. Type of environment:

- Land
 Swamp
 Water
 Seasonal swamp
 Shoreline/Waterfront

i. Type of environment to which oil has spread:

- Land
 Swamp
 Water
 River (identify) _____

ii. Weather condition

- Rain
 Sunny
 Dry
 Wet
 Windy
 Hot
 Cool

11. Distance from the nearest sensitive habitat

- | | | |
|---|--|--------------------------------|
| <input type="checkbox"/> Government reserved and designated protected area
<input type="checkbox"/> Drinking water source
<input type="checkbox"/> Built up area
<input type="checkbox"/> Farmlands
<input type="checkbox"/> Fish Farm/Pond
<input type="checkbox"/> Fishing net
<input type="checkbox"/> Others (specify). | [.m]
[.m]
[.m]
[.m]
[.m]
[.m] | } NONE SEEN
WITHIN VICINITY |
|---|--|--------------------------------|

12. Containment measures put in place:

- Booms
 Trench
 Dyke
 Natural depression
 Pit
 None
 Others: _____

13. Any pictures or video coverage?

✓ [N]

14. Further response/repair initiated as at the time of JIV?

✓ [N]

If yes to item 14, give brief description:

REPAIR BY CLAMPING

15. Was there any disruption to the investigation?

✓ [N]

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If yes to item 15 give brief description:

SECURITY ISSUES / COMMUNITY ISSUES

D. TYPE/NUMBERS OF PROPERTIES, IF ANY, FOUND WITHIN THE AREA OF SPREAD OF OIL

16. Structures / Properties

S/N	Type of Structures	Description	Size	Number	Comments
NONE WITHIN AREA OF IMPACT					

17. Crops/Economic Trees

S/N	Type of crops	Young	Medium	Matured	Quantity	Comments
NONE WITHIN AREA OF IMPACT						

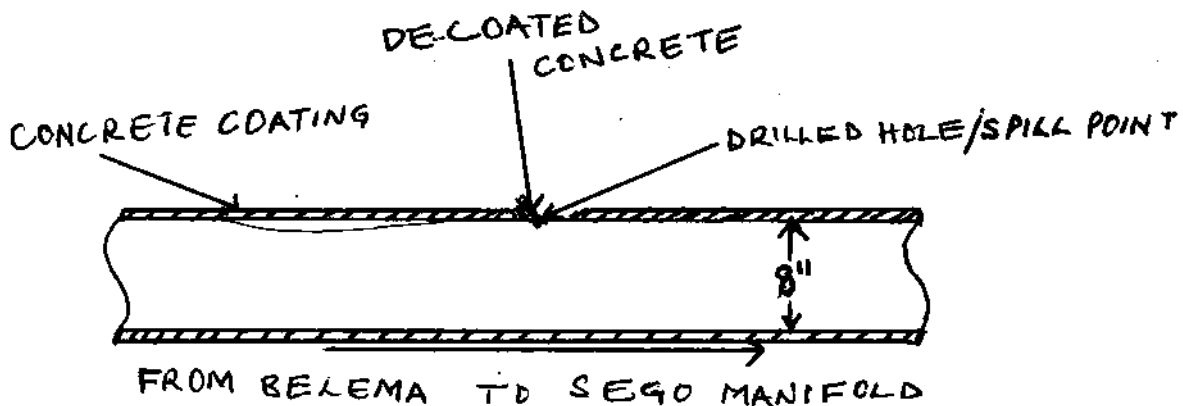
18. Fishing Nets/Fish Ponds

S/N	Nets/Ponds	Description	Quantity/Size	Comments
NONE WITHIN AREA OF IMPACT				

19. Others (Specify) i.e. Animal Traps

S/N	Others	Description	Quantity/Size	Comments
1	MANGROVES	MANGROVES	MANY	IMPACTED

E. GRAPHIC DESCRIPTION OF LEAK POINT (while detail report of the leak point should be contained in the leak report, overview sketch of the site should be added as an appendix 1) **A SECTION OF 8" BELEMA - SEGO DELIVERYLINE AT OFFOINAMA SHOWING DRILLED HOLE**



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F: TABLE SHOWING SOME OF COORDINATES TAKEN DURING JIV FOR AREA CALCULATION

20. Impacted area boundary Coordinates *(If more, Print and attach as an appendix)*

S/N	Northing	Easting

PLEASE FIND ATTACHED
26-08-2016

8" BELEMA-SEGO DELIVERYLINE SPILL @ OFFOINAMA				47	6.65718	4.47794	IMPACTED COORDINATE
INC.NO:1592252		INC.DATE: 09/03/2016		48	6.65754	4.47792	IMPACTED COORDINATE
PTS	EASTING	NORTHING	REMARKS	49	6.65787	4.47788	IMPACTED COORDINATE
SP	6.65762	4.47671	SPILL POINT	50	6.65808	4.47781	IMPACTED COORDINATE
1	6.66200	4.48008	IMPACTED COORDINATE	51	6.65826	4.47751	IMPACTED COORDINATE
2	6.66275	4.47990	IMPACTED COORDINATE	52	6.65808	4.47722	IMPACTED COORDINATE
3	6.66302	4.47966	IMPACTED COORDINATE	53	6.65782	4.47693	IMPACTED COORDINATE
4	6.66358	4.47949	IMPACTED COORDINATE	54	6.65772	4.47692	IMPACTED COORDINATE
5	6.66385	4.47929	IMPACTED COORDINATE	55	6.65787	4.47714	IMPACTED COORDINATE
6	6.66488	4.47901	IMPACTED COORDINATE	56	6.65817	4.47750	IMPACTED COORDINATE
7	6.66532	4.47865	IMPACTED COORDINATE	57	6.65806	4.47769	IMPACTED COORDINATE
8	6.66558	4.47863	IMPACTED COORDINATE	58	6.65766	4.47767	IMPACTED COORDINATE
9	6.66564	4.47872	IMPACTED COORDINATE	59	6.65732	4.47776	IMPACTED COORDINATE
10	6.66563	4.47850	IMPACTED COORDINATE	60	6.65710	4.47784	IMPACTED COORDINATE
11	6.66531	4.47860	IMPACTED COORDINATE	61	6.65658	4.47842	IMPACTED COORDINATE
12	6.66478	4.47895	IMPACTED COORDINATE	62	6.65640	4.47880	IMPACTED COORDINATE
13	6.66386	4.47925	IMPACTED COORDINATE	63	6.65633	4.47872	IMPACTED COORDINATE
14	6.66352	4.47940	IMPACTED COORDINATE	64	6.65594	4.47866	IMPACTED COORDINATE
15	6.66288	4.47965	IMPACTED COORDINATE	65	6.65569	4.47853	IMPACTED COORDINATE
16	6.66263	4.47985	IMPACTED COORDINATE	66	6.65555	4.47830	IMPACTED COORDINATE
17	6.66206	4.47997	IMPACTED COORDINATE	67	6.65555	4.47809	IMPACTED COORDINATE
18	6.66174	4.47955	IMPACTED COORDINATE	68	6.65575	4.47753	IMPACTED COORDINATE
19	6.66163	4.47927	IMPACTED COORDINATE	69	6.65596	4.47701	IMPACTED COORDINATE
20	6.66140	4.47866	IMPACTED COORDINATE	70	6.65597	4.47670	IMPACTED COORDINATE
21	6.66130	4.47869	IMPACTED COORDINATE	71	6.65589	4.47641	IMPACTED COORDINATE
22	6.66172	4.47969	IMPACTED COORDINATE	72	6.65566	4.47644	IMPACTED COORDINATE
23	6.66200	4.48008	IMPACTED COORDINATE	73	6.65538	4.47682	IMPACTED COORDINATE
24	6.65992	4.47921	IMPACTED COORDINATE	74	6.65506	4.47712	IMPACTED COORDINATE
25	6.66012	4.47908	IMPACTED COORDINATE	75	6.65478	4.47715	IMPACTED COORDINATE
26	6.66026	4.47876	IMPACTED COORDINATE	76	6.65461	4.47688	IMPACTED COORDINATE
27	6.66020	4.47872	IMPACTED COORDINATE	77	6.65464	4.47629	IMPACTED COORDINATE
28	6.66008	4.47903	IMPACTED COORDINATE	78	6.65457	4.47628	IMPACTED COORDINATE
29	6.65993	4.47913	IMPACTED COORDINATE	79	6.65455	4.47638	IMPACTED COORDINATE
30	6.65947	4.47920	IMPACTED COORDINATE	80	6.65453	4.47686	IMPACTED COORDINATE
31	6.65918	4.47891	IMPACTED COORDINATE	81	6.65467	4.47719	IMPACTED COORDINATE
32	6.65918	4.47868	IMPACTED COORDINATE	82	6.65502	4.47720	IMPACTED COORDINATE
33	6.65947	4.47799	IMPACTED COORDINATE	83	6.65537	4.47696	IMPACTED COORDINATE
34	6.65941	4.47762	IMPACTED COORDINATE	84	6.65569	4.47650	IMPACTED COORDINATE
35	6.65833	4.47644	IMPACTED COORDINATE	85	6.65579	4.47650	IMPACTED COORDINATE
36	6.65826	4.47650	IMPACTED COORDINATE	86	6.65591	4.47666	IMPACTED COORDINATE
37	6.65932	4.47764	IMPACTED COORDINATE	87	6.65588	4.47696	IMPACTED COORDINATE
38	6.65940	4.47794	IMPACTED COORDINATE	88	6.65568	4.47743	IMPACTED COORDINATE
39	6.65913	4.47856	IMPACTED COORDINATE	89	6.65556	4.47776	IMPACTED COORDINATE
40	6.65910	4.47887	IMPACTED COORDINATE	90	6.65545	4.47824	IMPACTED COORDINATE
41	6.65941	4.47924	IMPACTED COORDINATE	91	6.65564	4.47855	IMPACTED COORDINATE
42	6.65992	4.47921	IMPACTED COORDINATE	92	6.65617	4.47876	IMPACTED COORDINATE
43	6.65648	4.47885	IMPACTED COORDINATE	93	6.65629	4.47880	IMPACTED COORDINATE
44	6.65666	4.47872	IMPACTED COORDINATE	94	6.65648	4.47885	IMPACTED COORDINATE
45	6.65677	4.47847	IMPACTED COORDINATE	95	6.66088	4.47642	IMPACTED COORDINATE
46	6.65701	4.47816	IMPACTED COORDINATE	96	6.66093	4.47639	IMPACTED COORDINATE

97	6.66063	4.47642	IMPACTED COORDINATE
98	6.65936	4.47564	IMPACTED COORDINATE
99	6.65909	4.47565	IMPACTED COORDINATE
100	6.65885	4.47577	IMPACTED COORDINATE
101	6.65849	4.47592	IMPACTED COORDINATE
102	6.65830	4.47592	IMPACTED COORDINATE
103	6.65821	4.47591	IMPACTED COORDINATE
104	6.65791	4.47571	IMPACTED COORDINATE
105	6.65729	4.47528	IMPACTED COORDINATE
106	6.65732	4.47532	IMPACTED COORDINATE
107	6.65741	4.47544	IMPACTED COORDINATE
108	6.65795	4.47579	IMPACTED COORDINATE
109	6.65829	4.47600	IMPACTED COORDINATE
110	6.65852	4.47598	IMPACTED COORDINATE
111	6.65906	4.47571	IMPACTED COORDINATE
112	6.65935	4.47568	IMPACTED COORDINATE
113	6.66061	4.47646	IMPACTED COORDINATE
114	6.66088	4.47642	IMPACTED COORDINATE
116	6.65759	4.47675	IMPACTED COORDINATE
117	6.65765	4.47674	IMPACTED COORDINATE
118	6.65765	4.47669	IMPACTED COORDINATE
119	6.65760	4.47669	IMPACTED COORDINATE
220	6.65772	4.47601	IMPACTED COORDINATE
221	6.65773	4.47644	IMPACTED COORDINATE
222	6.65768	4.47704	IMPACTED COORDINATE
223	6.65767	4.47753	IMPACTED COORDINATE
224	6.65726	4.47752	IMPACTED COORDINATE
225	6.65724	4.47696	IMPACTED COORDINATE
226	6.65733	4.47646	IMPACTED COORDINATE
227	6.65736	4.47591	IMPACTED COORDINATE
228	6.65728	4.47792	IMPACTED COORDINATE
229	6.65761	4.47882	IMPACTED COORDINATE
230	6.65765	4.47791	IMPACTED COORDINATE
231	6.65779	4.47773	IMPACTED COORDINATE
232	6.65775	4.47567	IMPACTED COORDINATE
233	6.65778	4.47553	IMPACTED COORDINATE
234	6.65776	4.47540	IMPACTED COORDINATE
235	6.65780	4.47462	IMPACTED COORDINATE
236	6.65743	4.47461	IMPACTED COORDINATE
237	6.65739	4.47514	IMPACTED COORDINATE
238	6.65755	4.47978	IMPACTED COORDINATE
239	6.65757	4.47929	IMPACTED COORDINATE
240	6.65716	4.47990	IMPACTED COORDINATE
241	6.65725	4.47911	IMPACTED COORDINATE
242	6.65724	4.47879	IMPACTED COORDINATE

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G. INCIDENT INFORMATION:

a. Impacted Area Details

- Total calculated area of impact 4.54Ha
- Impact within R.O.W YES
- Impact outside R.O.W YES

b. Volume of oil recovered before completion of JIV (V_{rec}):

Recovered oil V_{rec} :	57	Barrels
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Controlled recovery/evacuation from source with no impact to environment:

NIL	Barrels
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c. Net Estimated Spilled Volume V_{Est} (bbls)* =

360.35 BARRELS

Estimated Reported Volume V_{rep} (bbls)=**

361 BARRELS

***Notes:**

- Volume estimation was done using an excel based tool.(see attached for details on the calculation)
- Reported spilled volume is an estimate

Write other relevant notes taken into consideration for estimating the spilled in the box below:

Calculation of the respective estimated volume is to be done on site as far as practicable using the new spill volume estimation software on site; Conversion of m³ to barrels is Volume (m³) x 6.29; **Round up estimated volume to next whole number using the following rules:

- Any spill volume in excess of 1 bbl is rounded up to the next whole number.
- Any spill volume in less than 1 bbl is rounded up to the next 0.1 bbl.

Examples: Calculated volume = 15.3 bbl ----- Reported volume = 16 bbl
 Calculated volume = 0.35 bbl ----- Reported volume = 0.4 bbl
 Calculated volume = 0.01 bbl ----- Reported volume = 0.1 bbl

Wherever this estimation tool is not applicable please refer to paragraph 6c (Deviations) of the JIV procedure to use appropriate steps for volume estimation; record the calculation in a plain sheet of paper and attach to the JIV report.

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d. General Status of the site

i. Joint investigation of the incident site found that there is no residual impact after the initial response and JIT therefore recommend that the site be closed out <input type="checkbox"/>
ii. Investigation of the incident site showed that there is residual impact on site requiring further works <input checked="" type="checkbox"/>

e. Representatives

This report was filled, agreed and signed by the following joint investigation team representatives:

- Host Community:
- Department of Petroleum Resources [DPR]:
- National Oil Spill Detection and Response Agency [NOSDRA]:
- State Ministry of Environment [SME]:
- Asset Owner:
- Signatories agree with reported findings:
- Separate DPR form has been filled out with same findings:

Tick as applicable

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f. Appendix 1: Overview sketch of the site

Location: 8th BELEMA - SEGO DELIVERY LINE AT OFFDINAMA

